Rare disease

Toothache: an unlikely presentation of secondary breast malignancy

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Summary

An 81-year-old female presented to the maxillo-facial department with a 6-month history of left-sided toothache and upper lip and cheek numbness. She had previously undergone a right mastectomy for breast adenocarcinoma, followed 6 years later by left mastectomy with pneumonectomy for contralateral breast and lung metastases. Following buccal biopsies and MRI of the head and neck, the patient was referred to our head and neck team. The MRI showed a large left maxillary sinus mass and transnasal endoscopic biopsies under general anaesthesia of this confirmed distant breast carcinoma metastasis. The patient was discussed at the Head and Neck Multidisciplinary Team meeting. Further surgical resection was not thought appropriate and the patient has subsequently undergone curative dose radiotherapy to the face. She remains alive with symptom control 8 months following this presentation.

BACKGROUND

Breast carcinoma has the potential to metastasise to a variety of sites, most commonly to the lung, liver and bone. We present a case of an extremely rare secondary deposit of breast carcinoma in the head and neck region masquerading as toothache. Appropriate referral and review by specialist ENT- Head and Neck services resulted in an expeditious diagnosis with multi-disciplinary management.

CASE PRESENTATION

An 81-year-old female presented to the maxillo-facial department with a 6-month history of left-sided toothache and intermittent stabbing left infra-orbital pain. She also had upper lip and cheek numbness. Eight years prior to this, she had been treated with a right breast wide local excision and axillary clearance for breast carcinoma. She subsequently underwent a left mastectomy and pneumonectomy for contralateral breast and lung metastases 2 years prior to this presentation.

On examination, she was found to have a small left upper gingival polypoid lesion. An orthopantomogram x-ray was performed and reported as normal. Following buccal and gingival biopsies and an MRI scan of the head and neck, the patient was referred to our ENT-Head and Neck team.

On review in the Head and Neck clinic there were no obvious head and neck masses and no cervical lymphadenopathy. Neurological examination revealed numbness over the left CN V (III) area and CN VII function was normal. A small mucosal gingival swelling relating to the left upper molar tooth was identified, but the oral cavity and oropharynx were otherwise normal. Flexible nasendoscopy and anterior rhinoscopy were unremarkable. Following review of the patient's MRI scan and biopsy histology in the Head and Neck Multidisciplinary Team

(MDT) meeting, the patient underwent an urgent CT scan of the facial skeleton / sinuses and left functional endoscopic sinus surgery with biopsies.

INVESTIGATIONS

Radiology

MRI

Large mass in the left maxillary sinus and pterygopalatine fossa reaching the skull base without intracranial extension.

CT

Large soft tissue mass centred at the left maxillary antrum/pterygopalatine fossa causing destruction of the lateral antral wall and pterygoid plate extending superiorly into the infratemporal fossa. Inferiorly, the mass abuts the alveolar surface of the maxilla and the nasal cavity medially.

Histology

Initial buccal / gingival biopsy: hyperplastic oral mucosa with underlying tumour; appearances suggestive of pleomorphic adenoma but with numerous mitoses.

Left maxillary antrum biopsy: matrix-producing carcinoma consistent with being a distant metastasis from a matrix-producing carcinoma of the breast.

DIFFERENTIAL DIAGNOSIS

The preliminary diagnosis following the buccal biopsies was that of a minor salivary gland tumour. Other primary sinonasal tumours were considered with a distant metastasis being further down the list of differentials.

TREATMENT

The patient was discussed at the Head and Neck MDT and collectively a decision made for no further surgical

intervention. The patient was referred back to the Breast MDT and a decision subsequently made for curative dose radiotherapy to the face.

OUTCOME AND FOLLOW-UP

The patient remains alive with symptom control 8 months following this presentation and subsequent radiotherapy. She remains under the care of the breast cancer team.

DISCUSSION

Metastatic breast carcinoma is not uncommon. It can spread by both haematogenous and lymphatic channels.¹ Bone, lung, liver and brain are the most frequently affected sites whereas secondary spread to the paranasal sinuses is extremely rare. Indeed, primary paranasal sinus carcinomas only account for 4% of head and neck carcinomas and metastases only make up a small proportion of paranasal tumours.²

Prescher et al reported only 169 cases of metastatic disease from any site to the head and neck region and the same review found only 13 cases of breast metastases to the paranasal sinuses.³ On present review of the literature we have found only seven cases of breast metastases to the maxillary sinus. The rarity of this disease is further highlighted by not a single occurrence of paranasal sinus metastasis being found in the autopsy examination of over 1500 patients with breast carcinoma.^{4 5} The most common cancer sites to disseminate metastatic deposits to the

paranasal sinuses are the kidney (40%), lung (9%), thyroid (8%) and breast (8%).³

Our patient presented with some of the typical symptoms of sinus tumours which include nasal obstruction, facial pain, facial swelling, visual disturbances, cranial nerve deficits and epistaxis.⁶ Sinusitis can also present with some of these symptoms and difficulties can arise in distinguishing sinusitis in the breast cancer patient undergoing immunosuppressive therapy from the patient with metastatic disease.⁷

History, clinical examination, MRI / CT imaging and biopsies are the mainstay of investigation and a multidisciplinary approach to assessment and management is vital, as this case demonstrates. Paranasal sinus metastases can be the initial presentation of occult primaries and therefore a thorough history with targeted clinical examination and investigation are key.

Palliative management is often indicated in these patients as clinical outcome is very poor. A review by *Austin et al* found that nine out of the nine reported patients with breast metastases to the paranasal sinuses died from their disease.⁷ The size and extra-sinus extent of paranasal metastatic disease extent affects prognosis; *Kent and Majumdar* found that survival in patients with paranasal sinus metastases was 20–30 months on average.⁸ Our patient has an isolated metastasis and we expect a better prognosis than in previously reported cases. Indeed, to date, the patient is alive and symptom free following radiotherapy treatment, 8 months after initial presentation.

Figure 1 T1 weighted MRI sinus in the coronal plane: shows left maxillary tumour with pterygopalatine extension and inferior extension to alveolar surface of maxilla.

Figure 2 Reformatted CT sinus scan in the coronal plane: shows left maxillary tumour with lateral extension destroying the lateral antral wall.

In rare cases such as this, diagnosis can be difficult. A thorough history and examination along with a multidisciplinary approach is essential in investigating and managing such patients. Unfortunately there is a very poor prognosis and these patients invariably die of their disease.

Learning points

- ▶ Although rare, paranasal sinus metastases from distant sites such as the breast and kidneys do occur.
- ▶ A detailed history and examination of relevant extra-head and neck sites is important in the patient who presents with a suspected head and neck tumour.
- ▶ A multidisciplinary approach involving all the relevant specialties is vital in diagnosing and managing such presentations.

Competing interests None.

Patient consent Obtained.

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